

REMARKS

The Office Action of July 16, 2003, and the references cited therein have been carefully considered.

In this amendment independent claims 1 and 11 have been amended to incorporate a portion of the limitations of claims 3 and 13, respectively. That is, claims 1 and 11 have been amended to more clearly bring out that the two-dimensional code pattern directly formed on the surface of the semiconductor chip is formed by projection and exposure, i.e. essentially printed on the surface of the semiconductor chip. It is submitted that since these limitations were previously contained in claims 3 and 13, no new issues requiring further search or consideration are presented. Accordingly, entry of the amendment is requested.

Reconsideration of the rejection of all of the claims, i.e. claims 1-22 , under 35 U.S.C. 103 (a) as being unpatentable over the patent to Shamir in view of the patents to Wang et al and Bossen et al is respectfully requested. In urging this ground of rejection, the Examiner has taken the position that the patent to Shamir discloses a wafer with a plurality of semiconductor dies, with individual information regarding the particular die being placed on the respective die in the form of labels, with the information being in the form of a one-dimensional barcode; that the patent to Wang et al teaches that two-dimensional barcodes are known in the art; that the Shamir and Wang et al references do not disclose that the barcodes are directly on the surfaces; that the Bossen patent discloses that barcodes are etched directly onto the semiconductor substrate surface; and consequently it would be obvious to one skilled in the art to provide a code as taught by

Wang et al on the device as taught by Shamir, and provide the code directly on the surface as taught by Bossen et al in order to render the claimed invention obvious. With regard to the features of the claims 11-21, it is the Examiner's position that the claimed reader and management unit are well known and would be obvious to provide and with the devices as recited in the claims. The Examiner's conclusion is respectfully traversed.

The Shamir and Wang et al references were extensively discussed in the last amendment (with regard to the Shamir reference in the Remarks of a number of amendments). It is submitted that the arguments set forth in the remarks of the last amendment are still pertinent here. Accordingly, rather than completely repeat these arguments here, these arguments are incorporated herein by reference. In general, the Shamir patent shows a microlabel having a one-dimensional barcode fixed to the top surface of an individual die or of an encapsulation. As recognized by the Examiner the Shamir reference does not teach the use of a two-dimensional code of any type, and in particular a two-dimensional barcode. To overcome this deficiency, the Examiner has applied the teachings of the Wang et al patent which admittedly teaches that two-dimensional barcodes are known. However, as generally argued in the last amendment, where is there any teaching or suggestion or motive to combine these references, or even that the problem solved by the present invention exists.

As recognized by the Examiner, all of the independent claims specifically recite that the information is directly on the surface of the individual device. This is clearly not the case according to the Shamir patent, and to overcome this deficiency the Examiner

has cited the patent to Bossen, which etches the surface of the device to provide information in the form of a one-dimensional barcode.

Turning now to the individual claims, as indicated above claims 1 and 11 have been amended to specifically incorporate a portion of original claims 3 and 13, respectively, and now require that the information on the surface of the chip is formed by projection and exposure. That is, the information is disposed on the surface of the chip in a manner similar to printing. Such is not the case according to the teachings of the cited prior art in any combination thereof.

As indicated above, the Shamir reference applies information to the surface of a device using a microlabel on which the information is disposed. The Wang et al reference, on the other hand, teaches providing the barcode data in the form of ion doping for semiconductor wafers. Finally, the Bossen reference teaches forming the information in the form of a barcode using laser etching of the surface. As recognized by the Examiner, the only one of these references which forms the information directly at the surface of the semiconductor device is the Bossen reference. However, since this information is applied by etching, it is not provided "...directly on a surface..." (emphasis added). Rather, the information is formed in the device adjacent the outer surface. Thus, each of the three references discloses a completely different method of providing the information, with none of these references teaching a device wherein the information is directly on a surface of the device. Accordingly, even if it were obvious to one skilled in the art to combine the references in the manner suggested by the Examiner, the result would still not be the invention as defined in claims 1 and 11. Accordingly, for

at least the above stated reasons, it is submitted that claims 1-3, 11-13, and 21 allowable over the cited combination of references under 35 U.S.C. 103(a). It should further be noted, that none of the references recites or teaches the management unit of claim 11.

Independent claims 4 and 14 each require a two-dimensional barcode pattern and thus the arguments above with regard to same are pertinent here. In addition, claim 14 likewise recites that the information is provided directly on a peripheral surface of the lead frame. Thus the arguments above with regard to this point are likewise pertinent here. With regard to claim 4, this claim recites that the two-dimensional code pattern is "directly applied" to a peripheral surface of the lead frame. In none of the cited references does this take place. That is, etching with a laser as in Bossen is not a direct application to a peripheral surface. Finally, each of claims 4 and 14 require that the peripheral surface to which the pattern is applied is a peripheral surface of a lead frame. There is no teaching or suggestion, or anything which would make it obvious, in any of the cited references of applying such patterns to a peripheral surface of a lead frame. Note that with a two-dimensional code pattern on a peripheral region of a lead frame, the information can be easily recognized and a wiring pattern to be bonded can be easily changed during the wire bonding as described in the application. In any case, it is submitted that for the above stated reasons, claims 4 and 14, as well as claims 5 and 6, and 15, respectively, dependent thereon, are allowable over the cited combination of references under 35 U.S.C. 103.

Claims 7 and 16 are each directed to a device with a resin housing on whose outer surface the two-dimensional code pattern is directly formed. Again, each of these claims